

that have been described. He also gives a brief synopsis of the factors most prominent in the control of such vegetation, and some of the more important floristic differences which characterize the grasslands at different altitudes. A notable reduction of species is manifest with increase of altitude, the estimate running from 160 species for the mesas, 139 for the foothills, and 107 for the montane, to 50 for the subalpine. A systematic list of species is given with indications of their occurrence at different altitudes. The whole, including the bibliography, forms a most useful contribution, summarizing the present state of our knowledge of these plant communities.—GEO. D. FULLER.

Biology of Fomes.—WHITE²⁰ has made a comprehensive study of the widely distributed *Fomes applanatus*, and finds that it attacks practically all deciduous trees and several conifers, causing the destruction of large quantities of wood annually. It produces basidiospores only, which are not of the ordinary type, being "yellow, papillate, thick-walled chlamydospores within a thin hyaline wall." Spore discharge is enormous and continues for a longer period than recorded for any other fungus, being continuous day and night for about 6 months. There was no difficulty in making artificial cultures, and the appearance of the rotted wood makes it possible to distinguish the attack of this fungus from that of any other form. The histological and chemical details of the attack are fully described.—J. M. C.

Ecology of fungi.—Studying the influence of altitude upon parasitic fungi from collections made by FRAGOSCO in Cataluña, Spain, and by himself in Barreges, DUFRENOY²¹ found that the Pyrenees are not a barrier to the dissemination of fungi, although there are certain differences between the fungus flora of the closely adjacent parts of France and Spain. He concludes that there are species peculiar to the plains and to the mountains, as well as those common to both habitats. The determining factor in altitudinal distribution seems to be neither humidity nor temperature, but radiation. The mountain species are either more highly colored or are found on more highly colored hosts. He was unable to determine any effect of altitude upon the resistance of the host.—GEO. D. FULLER.

Pennsylvania trees.—The fact that within 5 years ILLICK'S²² tree manual has reached its third edition is a striking testimony to its excellence. The first part of the volume is devoted to a general discussion of forests, their structure, development, care, and value receiving careful consideration, and

²⁰ WHITE, J. H., On the biology of *Fomes applanatus* (Pers.) Wallr. Trans. Roy. Can. Inst. Toronto 1919: 133-174. pls. 2-7.

²¹ DUFRENOY, J., Les conditions écologiques du développement des champignons parasites. Etude de géographie botanique. Bull. Soc. Mycol. France 34:8-26. 1918.

²² ILLICK, J. S., Pennsylvania trees. 3d ed. pp. 235. pls. 1-129. figs. 120. Harrisburg: Dept. Forestry Penn. Bull. 11: 1919.